



State of Washington Pension Funding Council LEOFF 2 Board

Actuarial Audit of June 30, 2023 Actuarial Valuation

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August 19, 2024

Shawn Merchant
Legislative & Stakeholder Relations Director
Department of Retirement Services

Steve Nelsen
Executive Director
LEOFF Plan 2 Retirement Board

Re: Actuarial Audit of June 30, 2023 Actuarial Valuation

Dear Shawn and Steve:

The enclosed report presents the findings and comments resulting from a detailed review of the June 30, 2023 actuarial valuation performed by the Office of the State Actuary (OSA) for the Pension Funding Council (PFC) and the LEOFF 2 Board. An overview of our findings is included in the Executive Summary section of the report. More detailed commentary on our review process is included in the latter sections.

All calculations for the actuarial valuation are based on the Revised Code of Washington (RCW) and the actuarial demographic assumptions based on the 2013-2018 experience study and the economic assumptions from the 2023 Report on Financial Condition and Economic Experience Study for use in the June 30, 2023 actuarial valuation. These assumptions have been approved by both the PFC and LEOFF 2 Board.

As discussed in this report, we believe the package of actuarial assumptions and methods is reasonable (taking into account the experience of Washington State retirement systems and reasonable expectations). Nevertheless, the emerging costs will vary from those presented in this report to the extent that actual experience differs from that projected by the actuarial assumptions. Future actuarial measurements may differ significantly from the current measurements presented in this report due to factors such as the following:

- Plan experience differing from the actuarial assumptions,
- Future changes in the actuarial assumptions,
- Increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as potential additional contribution requirements due to changes in the plan's funded status), and
- Changes in the plan provisions or accounting standards.

Due to the scope of this assignment, we did not perform an analysis of the potential range of such measurements.

The results developed in this actuarial audit used models intended for valuations that use standard actuarial techniques.

In preparing this report, we relied, without audit, on information (some oral and some in writing) supplied by the OSA's staff and the Department of Retirement Systems (DRS)'s staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. In our examination of these data, we have found them to be reasonably consistent and comparable with data used for other purposes. Since the audit results are dependent on the integrity of the data supplied, the results can be expected to differ if the underlying data is incomplete or missing. It should be noted that if any data or other information is inaccurate or incomplete, our calculations may need to be revised.

On the basis of the foregoing, we hereby certify that, to the best of our knowledge and belief, this report is complete and accurate and has been prepared in accordance with generally recognized and accepted actuarial principles and practices which are consistent with the principles prescribed by the Actuarial Standards Board and the Code of Professional Conduct and Qualification Standards for Actuaries Issuing Statements of Actuarial Opinion in the United States of the American Academy of Actuaries.

Milliman's work product was prepared exclusively for the Pension Funding Council and the LEOFF 2 Board for a specific and limited purpose. It is a complex, technical analysis that assumes a high level of knowledge concerning the operations of the Washington State retirement systems, and uses DRS's census data, which Milliman has not audited. It is not for the use or benefit of any third party for any purpose. Any third-party recipient of Milliman's work product who desires professional guidance should not rely upon Milliman's work product, but should engage qualified professionals for advice appropriate to its own specific needs.

The consultants who worked on this assignment are retirement actuaries. Milliman's advice is not intended to be a substitute for qualified legal or accounting counsel.

The signing actuaries are independent of the plan sponsor. We are not aware of any relationship that would impair the objectivity of our work.

We would like to express our appreciation to the OSA's and DRS's staff for their assistance in supplying the data and information on which this report is based.

We are members of the American Academy of Actuaries and meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinion contained herein.

We respectfully submit the following report, and we look forward to discussing it with you.

Sincerely,



Nick J. Collier, ASA, EA, MAAA
Consulting Actuary



Daniel R. Wade, FSA, EA, MAAA
Consulting Actuary



Gary Deeth, ASA, EA, MAAA
Consulting Actuary

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1. Summary of the Findings

Purpose and Scope of the Actuarial Audit

This actuarial audit reviews the June 30, 2023 actuarial valuation performed by the Office of the State Actuary (OSA). The purpose of this audit is to verify that the results of the valuation are accurate and that the assumptions the valuation is based upon are reasonable. The following tasks were performed in this audit:

- Evaluation of the data used in the valuation
- Full independent replication of the key valuation results
- Evaluation of the reasonableness of the assumptions used in the valuation
- Analysis of valuation results and reconciliation of material differences (if any)
- Analysis of the written work product

Audit Conclusion

The results of this audit are very positive. Specifically, we want to highlight the following:

- Reasonable Assumptions:
 - The demographic assumptions were all reviewed as part of the 2013 – 2018 Demographic Experience study. Milliman completed an actuarial audit of that study and based on our findings in that audit, we found that the recommended assumptions used to value liabilities were reasonable, and we believe the assumptions continue to be reasonable for use in the 2023 actuarial valuation. Please see our report dated May 1, 2020 for more information about our findings. In addition, Milliman reviewed the assumptions added as part of the revision to the LEOFF 2 benefit formula pursuant to SHB 1701 and found them to be reasonable.
 - The economic assumptions were reviewed as part of this year's audit. We reviewed the assumptions recommended by the OSA in its 2023 Economic Experience Study and adopted by the Pension Funding Council (PFC) and LEOFF 2 Board. We found all assumptions used to be reasonable.
- Accurate Calculations: Our independent calculations matched OSA's closely in all material aspects of the valuation.
- Contributions toward Funding: Washington State has an overall funding level that is superior to that of most statewide systems. In our opinion, the use of the aggregate actuarial cost method, along with relatively short amortization periods for PERS and TRS Plans 1, provides a reasonable balance between funding progress and contribution rate stability.
- Compliance with Actuarial Standards of Practice: We found the work performed by OSA to be in compliance with the relevant actuarial standards of practice and appropriately reflects recent revisions to the standards.

Based upon our review of the June 30, 2023 actuarial valuation, we found the actuarial work performed by OSA was reasonable, appropriate, and accurate. We closely matched the assets, liabilities, and contribution rates calculated by OSA.

Statement of Key Findings

Membership Data

We performed tests on both the raw data supplied by the Department of Retirement Systems (DRS) and the processed data used by the OSA in the June 30, 2023 actuarial valuation. We found that there was an excellent match between the data supplied by DRS and the data used by OSA. Based on this review, we concluded that the individual member data used is complete and consistent with the data supplied by DRS. A summary is shown in the table below:

All Plans			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	352,278	352,278	100.0%
Total Salaries (millions)	\$ 29,524	\$ 29,524	100.0%
Average Age	45.8	45.8	100.0%
Average Service	10.3	10.3	100.0%
Average Salary	\$ 83,812	\$ 83,812	100.0%
Retirees and Survivors			
Total Number	224,021	224,021	100.0%
Average Monthly Pension	\$ 2,229	\$ 2,228	100.0%
Terminated Members			
Total Number Vested	71,914	71,914	100.0%
Total Number Non-Vested	172,849	172,850	100.0%

Actuarial Value of Assets

We have reviewed the calculations for the actuarial value of assets used for each plan in the June 30, 2023 valuation. We found the calculations to be accurate and the methodology to be reasonable and in compliance with Actuarial Standards of Practice.

The actuarial value of assets is discussed in more detail in Section 3 of this report.

Actuarial Liabilities

We independently calculated the Present Value of Benefits, Normal Cost, and Actuarial Accrued Liability under the Entry Age Normal actuarial cost method for all systems. We found that all significant benefit provisions were accounted for in an accurate manner, the actuarial assumptions and methods are being applied as reported, and that our total liabilities matched those calculated by OSA closely. This was true both in aggregate and by individual plan.

A summary of the results for each system is shown in the table below. Note that the results below do not include changes for the laws of 2024 or for 2023 legislation that takes effect after the June 30, 2023 valuation date. Further breakdowns are shown in Section 4.

	OSA	Milliman	Ratio OSA/Milliman
Present Value All Future Benefits (in \$Millions)			
PERS 1	\$ 10,593.5	\$ 10,574.4	100.2%
PERS 2/3	73,889.8	73,941.4	99.9%
TRS 1	7,690.5	7,681.4	100.1%
TRS 2/3	35,064.3	35,138.3	99.8%
SERS 2/3	12,196.8	12,196.1	100.0%
PSERS 2	2,588.7	2,585.7	100.1%
LEOFF 1	4,269.4	4,276.5	99.8%
LEOFF 2	25,391.5	25,450.1	99.8%
WSPRS	2,045.1	2,048.4	99.8%
Total PVB	\$ 173,729.6	\$ 173,892.3	99.9%

Benefits Changes during Current Biennium

There are several changes to benefits reflected in the calculated 2025-27 contribution rates. Based on our review, we find that the additional costs of these benefits are appropriately reflected based on the relevant Fiscal Notes. Additionally, we verified the recent change to the LEOFF 2 benefit formula is accurately reflected in OSA's calculations. Under SHB 1701, the new LEOFF 2 service retirement benefit formula reflects an increase in the benefit accrual rate from 2.0% to 2.5% for years of service from 15 years to 25 years.

Funding

We reviewed the funding methods and their application. We find them reasonable and consistent with the Actuarial Standards of Practice and the objectives stated in RCW 41.45.010. Based on the Systems' funding methods and assumptions, we believe the employer contribution rates for each membership class are appropriately calculated.

Calculated Contribution Rates for 2025-27 Based on 2023 Actuarial Valuation

Using the liabilities, present value of future salaries, and actuarial assets calculated by OSA, we matched OSA's calculations of the contribution rates.

Using the liabilities, present value of future salaries, and actuarial assets calculated by Milliman, the results were close to OSA's calculated contribution rates, as shown below.

Calculated Employer Contribution Rates

	OSA	Milliman	Difference OSA - Milliman
Calculated Employer Contribution Rates (Percent of Member Pay)			
PERS 1/2/3	8.62%	8.60%	0.02%
TRS 1/2/3	9.82%	9.84%	-0.02%
SERS 2/3	9.97%	9.96%	0.01%
PSERS 2	9.76%	9.74%	0.02%
WSPRS	21.72%	21.83%	-0.11%
LEOFF 1	0.00%	0.00%	0.00%
LEOFF 2*	5.66%	5.71%	-0.05%

* The LEOFF 2 contribution rate structure is a 50%/30%/20% share for the member, employer, and the state, respectively. The 30% share for the employer is shown here.

Calculated Member Contribution Rates

	OSA	Milliman	Difference OSA - Milliman
Calculated Member Contribution Rates (Percent of Member Pay)			
PERS 1	6.00%	6.00%	0.00%
PERS 2	6.57%	6.55%	0.02%
TRS 1	6.00%	6.00%	0.00%
TRS 2	8.65%	8.64%	0.01%
SERS 2	7.92%	7.91%	0.01%
PSERS 2	7.71%	7.69%	0.02%
WSPRS	8.75%	8.75%	0.00%
LEOFF 1	0.00%	0.00%	0.00%
LEOFF 2	9.43%	9.52%	-0.09%

Funding is discussed in more detail in Section 5.

The calculated 2025-27 contribution rates for employees based on the 2023 actuarial valuation represent increases over the 2023-25 contribution rates being paid for PERS 2, TRS 2, SERS 2, PSERS 2, and LEOFF 2. Note that the legislature approved the continued use of the 2021-23 contribution rates based on the 2019 actuarial valuation for the 2023-25 employee contribution rates. For WSPRS 1/2, the employee rate is restricted by the maximum rate under RCW 41.45.0631. For TRS 2, the employee rate is restricted by the maximum rate under RCW 41.45.061.

The calculated employer contribution rates for PERS and SERS 2/3 are lower than the current rates for 2023-25. This is due to the scheduled decrease in UAAL payments for Plans 1 based on RCW 41.45.150. For TRS, the calculated employer contribution rates are higher than the current rates for 2023-25. For PSERS 2, the calculated employer contribution rates for fiscal year ending (FY) 2026 are higher than the current rates, while the FY 2027 rates are lower. This is due to the phasing-in of lower PERS Plan 1 contribution rates under 41.45.150. When excluding the contributions for the amortization of the Plan 1 UAAL, the calculated PSERS 2 employer contribution rates increase from the current rates to the calculated rates for 2025-27.

The calculated employer rates for WSPRS 1/2 are higher than the current rates. For WSPRS 1/2, there is no contribution to pay for the UAAL for Plans 1 and the employee rate is restricted by the maximum under 41.45.0631.

2025-27 Contributions Recommended by the Pension Funding Council

Due primarily to the continued recognition of large asset gains from FY 2021 in the projected actuarial value of assets, the OSA calculated lower projected contribution rates for 2027-29 based on projections for the 2025 actuarial valuation. At its July 17, 2024 meeting, the PFC voted to transition to lower expected contribution rates by smoothing contribution rates between current (2023-25) rates and the estimated 2027-29 rates. The rates recommended were equal to the average of the current rates and the rates the OSA projected for the 2025 actuarial valuation (for the 2027-2029 biennium) assuming all assumptions are met and reflecting the expected recognition of current deferred asset gains.

Milliman projected contribution rates for the 2025 actuarial valuation (applicable to the 2027-2029 biennium) by using a simplified method to anticipate the continued recognition of the FY 2021 asset gains and FY 2022 asset losses. Applying the same averaging of the current and projected rates, as recommended by the PFC, we calculated rates as shown in the following table:

	OSA	Milliman	Difference OSA - Milliman
Member Contribution Rates (Percent of Member Pay)			
PERS 2	6.15%	6.12%	0.03%
TRS 2	8.16%	8.17%	-0.01%
SERS 2	7.59%	7.57%	0.02%
PSERS 2	7.15%	7.05%	0.10%
WSPRS	8.75%	8.75%	0.00%

2025-27 Contributions for LEOFF 2

At its July 24, 2024 meeting, the LEOFF 2 Board voted to maintain the 2023-25 contribution rates for the 2025-27 biennium, while projecting a phase-in to higher contribution rates in the future.

Plan 1 Ad Hoc Cost-of-Living Adjustments (COLAs)

SHB 1985 provides a one-time 3% benefit increase to PERS Plan 1 and TRS Plan 1 retirees, up to a maximum of \$110 per month. The benefit increase goes into effect on July 1, 2024. The increase only applies for members who are not receiving a minimum benefit or temporary disability benefit.

There were four previous one-time benefit increases between the years 2018 and 2023.

Per SSB 6161 from the 2009 legislative session, all Plan 1 benefit improvements are paid within a fixed ten-year period. Per RCW 41.45.060(6-8), the amounts required for these benefit increases are not subject to, and are collected in addition to, any minimum contribution rates.

As of the 2023 actuarial valuation, the contribution rates for benefit increases were 0.47% and 0.94% prior to SHB 1985 for PERS Plan 1 and TRS Plan 1, respectively. With the inclusion of the increases under SHB 1985, the contribution rates for benefit increases were 0.55% for PERS Plan 1 and 1.10% for TRS Plan 1. The Plan 1 PERS rates are paid by employers on all PERS, PSERS, and SERS payroll, while the TRS Plan 1 rates are paid by employers on all TRS payroll.

These five benefit increases for PERS and TRS Plan 1 retirees are included in the 2023 actuarial valuation and are included in projections of future contributions done by the OSA. The effect of any possible future ad hoc COLAs is not included in the funding valuation and projections. It is our understanding of RCW 41.45.070 that possible future COLAs should not be reflected in the current contribution rates. Any future ad hoc COLAs would result in additional actuarial liability and additional employer contributions when compared to what is anticipated by the current valuation and projections. It is also our understanding that the Select Committee on Pension Policy (SCPP) is engaged in the process of studying options for COLAs for Plans 1.

Please note that under the requirements of Governmental Accounting Standards Board 67 and 68, financial reporting for pensions must reflect all projected benefit payments. From the GASB 68 implementation guide, "Projected benefit payments should include the effects of automatic cost-of-living adjustments (automatic COLAs). In addition, projected benefit payments should include the effects of...ad hoc COLAs, to the extent that they are considered substantively automatic." GASB states that "considerations that might be relevant to determining whether such changes are substantively automatic include the historical pattern of granting the changes, the consistency of the amounts of the changes or the changes relative to a defined inflation index."

In the most recent GASB 67 numbers produced by the Office of the State Actuary, the calculation of the total pension liability includes an assumption for 2% annual increases for COLAs. This has an impact on financial reporting, but does not impact the funding calculations for PERS and TRS Plans 1.

Unfunded Actuarial Accrued Liability (UAAL) Amortization for Plans 1

In addition to the contribution rates for the benefit improvements mentioned above, under RCW 41.45.150, there is a contribution rate of 1.50% in fiscal year 2026 and 0.50% for fiscal year 2027 for PERS Plan 1. When combined with the contribution rates for the benefit increases, the contribution rates for PERS, PSERS, and SERS payroll for PERS Plan 1 is 2.05% for fiscal year 2026 and 1.05% for fiscal year 2027. For TRS Plan 1, the contribution rate specified in RCW 41.45.150 without respect to the benefit improvements is 0.00% for the fiscal years ending in 2026 and 2027. Combined with the 1.10% rate for benefit improvements, this results in a total TRS Plan 1 contribution rate of 1.10% for both fiscal years ending 2026 and 2027.

While the contribution rates for Plans 1 UAAL for fiscal years ending 2024-27 are based on the prescribed rates above, the OSA continues to calculate rates to fund the Plans 1 UAAL for informational purposes. The methodology used in this calculation, a ten-year rolling amortization, is described in more detail in Section 5 of this report. Under RCW 41.25.140(1)-(3), for fiscal years 2015 through 2023, the Plans 1 UAAL contribution rates were the greater of the specified contribution rate and the ten-year rolling amortization.

OSA calculates a contribution rate for informational purposes of 0.34% for PERS Plan 1 and 0.27% for TRS Plan 1 using the ten-year rolling amortization. Milliman confirmed the OSA calculations are reasonable, as we calculated a contribution rate of 0.33% for PERS Plan 1 and 0.25% for TRS Plan 1 based on the same methodology, but using Milliman's liability calculations. Note that the rate for PERS Plan 1 is less than what RCW 41.45.150(4)(a) and RCW 41.45.150(5)(a) prescribe for PERS, PSERS, and SERS employers. However,

the rate for TRS Plan 1 is more than the 0.00% specified by RCW 41.45.150(6)(a). This means that the contribution rate being paid for TRS Plan 1 for 2025-27 is not projected to be sufficient to amortize the UAAL if that rate were to continue. Note, however, that under RCW 41.45.150(6)(b) the minimum contribution for TRS Plan 1 is scheduled to increase to 0.50% of pay beginning September 1, 2027, which is projected to be sufficient to amortize the TRS Plan UAAL in less than 10 years.

Actuarial Assumptions

We reviewed the assumptions used in the valuation and found them to be reasonable. A complete analysis of the demographic assumptions was done in 2020 for the 2013-2018 Demographic Experience Study. Please see our report dated May 1, 2020 for more information. In addition, Milliman reviewed the assumptions added as part of the revision to the LEOFF 2 benefit formula pursuant to SHB 1701 and found them to be reasonable.

The economic assumptions used were based on the OSA's 2023 Economic Experience Study completed in August 2023. While a full audit of that report is beyond the scope of our assignment, an actuarial audit would be incomplete without a review of the important economic assumptions used in the actuarial valuation, and we have completed such a review.

We have the following comments regarding the economic assumptions:

- The expected return assumption of 7.00% recommended by the OSA is reasonable based on the future expectations of WSIB and reflecting the 2.30-2.50% long-term national inflation assumption.
- The price inflation assumption of 2.30-2.50% nationwide and 2.75% for Washington state is reasonable. The general salary increase assumption of 3.25% is the sum of the Washington state inflation assumption and a factor of 0.50% for productivity growth. While recent inflation has been significantly higher, inflation is showing signs of slowing. The increase in CPI-U for Seattle-Tacoma-Bellevue was under 4% through June 2024 and down to 0.4% for the two months from April 2024 through June 2024. The long-term effect is less clear, but most extended forecasts of price inflation are close to the current assumption. The price inflation assumption should continue to be monitored going forward.
- OSA assumes annual growth in active membership of 1.00%. Most public sector pension plans assume no future growth in system membership. Please note that this assumption only impacts the amortization of the Plan 1 Unfunded Actuarial Accrued Liability (UAAL) over 10 years, which is only calculated for informational purposes. The small membership growth assumption over the 10-year amortization period has a modest impact on the calculated contribution rates.

Review of Preliminary Report

Due to timing considerations with the completion of the actuarial audit, the final 2023 Actuarial Valuation report has not been completed at this time, so we base the comments on the preliminary report. Overall, we found OSA's report to be very thorough. Effective with the 2023 valuation, updates to Actuarial Standard of Practice No.4 require additional disclosure with regard to plan funding. We found that the OSA's report appropriately reflects these revised disclosure requirements. Please see Section 6 of this report for more information about our review of the report.

Recommendations from Prior Audit

We have also reviewed the comments from our prior actuarial audit and reported on the incorporation of those comments. Our one recommendation pertaining to the valuation calculations was implemented.

Recommendations and Other Considerations

Recommended Changes to the 2023 Preliminary Valuation

None

Recommended Changes for Future Valuations with a Material Financial Impact

None

Recommended Changes for Future Valuations and Experience Studies with a Non-Material Financial Impact

None

Considerations for Future Valuations and Experience Studies with No Financial Impact

None.

2. Membership Data

Audit Conclusion and Comments

We performed tests on both the raw data supplied by DRS and the processed data used by OSA in the June 30, 2023 actuarial valuation. We found that the data used by OSA was consistent with the data supplied by DRS.

Based on this review, we found that the individual member data used was appropriate and complete.

Overall, the data process appears to be thorough and accurate. We would add the following comments:

- **Raw Data:** We were provided with the same files that were given to OSA by DRS, as well as the processed data files used by OSA in the actuarial valuation.

Completeness: The data that DRS provided to OSA contained all the necessary fields to perform the actuarial valuation.

Quality: Although we did not audit the data at the source, we performed some independent checks to confirm the overall reasonableness of the data. We compared the total retiree and beneficiary benefit amounts with the actual benefit payments made, as reported in the asset statements.

We also compared the total active member compensation on the DRS data with the estimated active payroll for 2022-2023. The actual member contribution amounts in the asset statements provided by DRS were divided by the applicable contribution rates for the prior year for each plan. This results in an estimated payroll for each plan. Based on this analysis, we found the compensation data to be reasonable.

- **Parallel Data Processing:** We performed independent edits on the raw data provided by DRS and then compared our results with the valuation data used by OSA, as summarized in the preliminary participant data summary on the OSA's website.

Our results do not match exactly, but do match very well. This is understandable, as some adjustments were made to annualize salaries for those with less than one year of service during the valuation period, and other adjustments were made for a few data elements outside of the expected range. Overall, each key data component matched very well, and we believe the individual member data used by the OSA was appropriate for valuation purposes.

A summary of the data for each plan is shown in Exhibit 2-1. In all cases, the summarized totals for our edited data matched those for OSA's valuation data closely. The "Milliman" column reflects the DRS data after adjustments by Milliman. The "OSA" column reflects the actual data used in the OSA's valuation as summarized in the preliminary participant data summary on the OSA's website.

**Exhibit 2-1
Member Statistics as of June 30, 2023**

All Plans			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	352,278	352,278	100.0%
Total Salaries (millions)	\$ 29,524	\$ 29,524	100.0%
Average Age	45.8	45.8	100.0%
Average Service	10.3	10.3	100.0%
Average Salary	\$ 83,812	\$ 83,812	100.0%
Retirees and Survivors			
Total Number	224,021	224,021	100.0%
Average Monthly Pension	\$ 2,229	\$ 2,228	100.0%
Terminated Members			
Total Number Vested	71,914	71,914	100.0%
Total Number Non-Vested	172,849	172,850	100.0%

PERS 1			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	506	506	100.0%
Total Salaries (millions)	\$ 38	\$ 38	100.0%
Average Age	70.7	70.6	100.1%
Average Service	25.9	25.9	100.0%
Average Salary	\$ 74,520	\$ 74,520	100.0%
Retirees and Survivors			
Total Number	39,306	39,306	100.0%
Average Monthly Pension	\$ 2,421	\$ 2,420	100.0%
Terminated Members			
Total Number Vested	149	149	100.0%
Total Number Non-Vested	1,963	1,963	100.0%

PERS 2			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	135,460	135,460	100.0%
Total Salaries (millions)	\$ 11,161	\$ 11,161	100.0%
Average Age	46.1	46.1	100.0%
Average Service	10.3	10.3	100.0%
Average Salary	\$ 82,395	\$ 82,395	100.0%
Retirees and Survivors			
Total Number	71,826	71,826	100.0%
Average Monthly Pension	\$ 2,188	\$ 2,187	100.0%
Terminated Members			
Total Number Vested	30,730	30,730	100.0%
Total Number Non-Vested	127,647	127,648	100.0%

PERS 3			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	38,053	38,053	100.0%
Total Salaries (millions)	\$ 3,119	\$ 3,119	100.0%
Average Age	44.8	44.8	100.0%
Average Service	9.0	9.0	100.0%
Average Salary	\$ 81,977	\$ 81,977	100.0%
Retirees and Survivors			
Total Number	8,869	8,869	100.0%
Average Monthly Pension	\$ 1,183	\$ 1,182	100.1%
Terminated Members			
Total Number Vested	7,609	7,609	100.0%
Total Number Non-Vested	-	-	100.0%

TRS 1			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	81	81	100.0%
Total Salaries (millions)	\$ 9	\$ 9	100.0%
Average Age	72.3	72.7	99.4%
Average Service	36.0	36.0	100.0%
Average Salary	\$ 114,307	\$ 114,307	100.0%
Retirees and Survivors			
Total Number	28,556	28,556	100.0%
Average Monthly Pension	\$ 2,472	\$ 2,472	100.0%
Terminated Members			
Total Number Vested	48	48	100.0%
Total Number Non-Vested	160	160	100.0%

TRS 2			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	28,991	28,991	100.0%
Total Salaries (millions)	\$ 2,675	\$ 2,675	100.0%
Average Age	41.3	41.3	100.0%
Average Service	7.3	7.3	100.0%
Average Salary	\$ 92,284	\$ 92,284	100.0%
Retirees and Survivors			
Total Number	7,370	7,370	100.0%
Average Monthly Pension	\$ 2,491	\$ 2,491	100.0%
Terminated Members			
Total Number Vested	3,875	3,875	100.0%
Total Number Non-Vested	9,155	9,155	100.0%

TRS 3			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	52,671	52,671	100.0%
Total Salaries (millions)	\$ 5,780	\$ 5,780	100.0%
Average Age	47.3	47.3	100.0%
Average Service	15.2	15.2	100.0%
Average Salary	\$ 109,742	\$ 109,742	100.0%
Retirees and Survivors			
Total Number	20,778	20,778	100.0%
Average Monthly Pension	\$ 1,574	\$ 1,574	100.0%
Terminated Members			
Total Number Vested	9,031	9,031	100.0%
Total Number Non-Vested	-	-	100.0%

SERS 2			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	36,822	36,822	100.0%
Total Salaries (millions)	\$ 1,674	\$ 1,674	100.0%
Average Age	46.4	46.5	99.8%
Average Service	6.6	6.6	100.0%
Average Salary	\$ 45,464	\$ 45,463	100.0%
Retirees and Survivors			
Total Number	14,553	14,553	100.0%
Average Monthly Pension	\$ 1,075	\$ 1,075	100.0%
Terminated Members			
Total Number Vested	7,484	7,484	100.0%
Total Number Non-Vested	24,651	24,651	100.0%

SERS 3			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	30,477	30,477	100.0%
Total Salaries (millions)	\$ 1,513	\$ 1,513	100.0%
Average Age	50.1	50.2	99.8%
Average Service	10.3	10.3	100.0%
Average Salary	\$ 49,660	\$ 49,660	100.0%
Retirees and Survivors			
Total Number	15,094	15,094	100.0%
Average Monthly Pension	\$ 613	\$ 612	100.2%
Terminated Members			
Total Number Vested	10,127	10,127	100.0%
Total Number Non-Vested	-	-	100.0%

PSERS 2			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	8,954	8,954	100.0%
Total Salaries (millions)	\$ 800	\$ 800	100.0%
Average Age	41.6	41.6	100.0%
Average Service	6.2	6.2	100.0%
Average Salary	\$ 89,305	\$ 89,305	100.0%
Retirees and Survivors			
Total Number	726	726	100.0%
Average Monthly Pension	\$ 1,291	\$ 1,290	100.1%
Terminated Members			
Total Number Vested	1,228	1,228	100.0%
Total Number Non-Vested	6,072	6,072	100.0%

LEOFF 1			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	7	7	100.0%
Total Salaries (millions)	\$ 1	\$ 1	100.0%
Average Age	70.6	70.6	100.0%
Average Service	44.9	44.9	100.0%
Average Salary	\$ 127,379	\$ 127,379	100.0%
Retirees and Survivors			
Total Number	6,154	6,154	100.0%
Average Monthly Pension	\$ 5,413	\$ 5,413	100.0%
Terminated Members			
Total Number Vested	-	-	100.0%
Total Number Non-Vested	19	19	100.0%

LEOFF 2			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	19,311	19,311	100.0%
Total Salaries (millions)	\$ 2,637	\$ 2,637	100.0%
Average Age	41.1	41.1	100.0%
Average Service	11.8	11.8	100.0%
Average Salary	\$ 136,552	\$ 136,552	100.0%
Retirees and Survivors			
Total Number	9,460	9,460	100.0%
Average Monthly Pension	\$ 5,137	\$ 5,142	99.9%
Terminated Members			
Total Number Vested	1,434	1,434	100.0%
Total Number Non-Vested	3,067	3,067	100.0%

WSPRS 1			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	209	209	100.0%
Total Salaries (millions)	\$ 31	\$ 31	100.0%
Average Age	51.4	51.4	100.0%
Average Service	24.9	24.9	100.0%
Average Salary	\$ 147,425	\$ 147,425	100.0%
Retirees and Survivors			
Total Number	1,321	1,321	100.0%
Average Monthly Pension	\$ 5,343	\$ 5,343	100.0%
Terminated Members			
Total Number Vested*	94	94	100.0%
Total Number Non-Vested	11	11	100.0%

* Includes 26 disability retired members currently receiving benefits from outside the pension funds

WSPRS 2			
	OSA	Milliman	Ratio OSA/Milliman
Active Members			
Total Number	736	736	100.0%
Total Salaries (millions)	\$ 86	\$ 86	100.0%
Average Age	35.4	35.4	100.0%
Average Service	9.2	9.2	100.0%
Average Salary	\$ 116,944	\$ 116,944	100.0%
Retirees and Survivors			
Total Number	8	8	100.0%
Average Monthly Pension	\$ 2,172	\$ 2,172	100.0%
Terminated Members			
Total Number Vested	105	105	100.0%
Total Number Non-Vested	104	104	100.0%

Members Receiving TAP Annuities			
	OSA	Milliman	Ratio OSA/Milliman
PERS 3			
Total Number	1,164	1,164	100.0%
Average Age	68.6	68.6	100.0%
Average Monthly Benefit	\$ 1,500	\$ 1,502	99.9%
TRS 3			
Total Number	2,376	2,376	100.0%
Average Age	69.3	69.3	100.0%
Average Monthly Benefit	\$ 1,617	\$ 1,626	99.4%
SERS 3			
Total Number	1,329	1,329	100.0%
Average Age	70.5	70.6	99.9%
Average Monthly Benefit	\$ 817	\$ 820	99.6%
All Members			
Total Number	4,869	4,869	100.0%
Average Age	69.5	69.5	100.0%
Average Monthly Benefit	\$ 1,371	\$ 1,376	99.6%

3. Actuarial Value of Assets

Audit Conclusion and Comments

We have reviewed the calculations for the actuarial value of assets used for each plan in the June 30, 2023 valuation. We found the calculations to be reasonable and the methodology to be appropriate and in compliance with Actuarial Standards of Practice.

The method used to determine the actuarial value of assets smooths investment gains and losses by reflecting a portion of the difference between the actual market value of assets and the expected market value for every fiscal year. For each year and each plan, a base for smoothed recognition over time is established equal to that difference.

The larger the deviation from expectation, the longer the recognition period for that base, with a level dollar amount recognized for each year of that period. For the largest deviations (more than 7% above or below the assumption), the gains or losses are recognized over eight years, whereas when the actual return is within 1% of the assumption, the gain or loss is recognized immediately. Additionally, a “corridor” is applied to make sure that the smoothed actuarial value of assets stays within 30% of the market value of assets.

Although it is unusual to recognize investment gains and losses over different periods, we found it to be a reasonable approach since the maximum smoothing period is reasonable and the method allows the actuarial value of assets to converge to market more rapidly if gains and losses are small.

We independently calculated the actuarial value of assets for each plan based on financial information provided by DRS.

We used the information from DRS, along with the outstanding gain/loss bases as published in the 2022 Actuarial Valuation Report. With this information and the asset methodology, our independent calculations were within 0.1% of the OSA’s calculation for every plan.

See the following exhibit for a comparison.

Exhibit 3-1
Comparison of Actuarial Value of Assets by Plan

AVA (millions)				
	OSA	Milliman	Ratio OSA/Milliman	
PERS				
Plan 1	\$ 8,561	\$ 8,564	100.0%	
Plan 2/3 (DB)	\$ 58,592	\$ 58,600	100.0%	
TRS				
Plan 1	\$ 6,732	\$ 6,734	100.0%	
Plan 2/3 (DB)	\$ 23,569	\$ 23,575	100.0%	
SERS				
Plan 2/3 (DB)	\$ 8,858	\$ 8,861	100.0%	
PSERS				
Plan 2	\$ 1,376	\$ 1,376	100.0%	
LEOFF				
Plan 1	\$ 6,365	\$ 6,365	100.0%	
Plan 2	\$ 19,342	\$ 19,347	100.0%	
WSPRS				
Plan 1 & 2	\$ 1,675	\$ 1,675	100.0%	

As discussed above, OSA uses an asset smoothing method to reduce volatility. A five-year smoothing method is the most commonly used method among large public retirement systems. OSA uses a variable-length -smoothing period, with eight years as the longest possible period, and shorter periods are employed in depending on how close the actual market return is to the assumed return. We find the use of an asset smoothing method is appropriate, and we generally recommend this to our clients, particularly in systems where contribution rates change annually or biennially.

When a smoothing method is used, the actuarial value of assets will deviate from the market value of assets. Many public retirement systems apply a corridor so that the actuarial value of assets is not allowed to deviate from the market value by more than a certain percentage. The potential downside of using a corridor is that it can cause significant contribution rate volatility when the assets are outside the corridor. OSA applies a corridor of 30% (if applicable).

Typically, the longer the recognition period, the more important it is to have a corridor. We believe that the eight-year-or-less smoothing period, coupled with the application of the corridor, is in compliance with ASOP No. 44, the actuarial standard of practice for the selection and use of asset valuation methods for pension valuations.

4. Actuarial Liabilities

Audit Conclusion and Comments

We independently calculated the present value of future benefits and future salaries, and the Entry Age Normal Cost rates for the Washington State retirement systems. We found that all significant benefit provisions were accounted for in an accurate manner and the actuarial assumptions and methods are being applied correctly. Our total liabilities closely matched those calculated by OSA. This was true both in aggregate and by System.

Note that there will always be differences in the calculated liabilities when calculated by different actuaries; however, the results should not deviate significantly. The level of consistency we found in this audit provides a high level of assurance that the results of the valuation accurately reflect the liabilities of the Washington State retirement systems based on the plan provisions, assumptions, methods, and census and financial data.

We incorporated the following information into our valuation system:

- **Data** – We used the same valuation data used by OSA. As discussed in Section 2, we confirmed that this data was very consistent with the data provided by DRS.
- **Assumptions and Methods** – We used the assumptions and methods used by OSA for the June 30, 2023 actuarial valuation. This was supplemented by discussions between OSA and Milliman on the technical application of these methods.
- **Benefit Provisions** – We obtained this information from the Revised Code of Washington and various member handbooks.

We then performed an independent parallel valuation as of June 30, 2023. Based on this valuation, we completed a detailed comparison of the Present Value of Future Benefits (PVFB) computed in our independent valuation and the amounts calculated by OSA. Exhibit 4-1 shows a summary of this analysis broken down by benefit type. Exhibit 4-2 shows a summary of this analysis broken down by System. The results were reasonable, and our calculated PVFB values match closely with those calculated by OSA.

Exhibit 4-1
Present Value of Future Benefits by Benefit Type

(in \$Millions)	All Systems in Aggregate		
	OSA	Milliman	O / M Ratio
Present Value All Future Benefits			
Retirement	\$78,900.0	\$78,962.4	99.9%
Termination	11,541.5	11,614.4	99.4%
Death	919.5	912.4	100.8%
Disability	<u>1,055.8</u>	<u>1,047.3</u>	<u>100.8%</u>
Total Actives	\$92,416.8	\$92,536.5	99.9%
Terminated Vested	\$7,788.2	\$7,826.7	99.5%
Terminated Not Vested	<u>723.8</u>	<u>723.7</u>	<u>100.0%</u>
Total Inactive, not in Payment	\$8,512.0	\$8,550.4	99.6%
Retired	\$65,313.4	\$65,284.8	100.0%
Disabled	2,311.1	2,324.6	99.4%
Survivor	3,672.0	3,689.5	99.5%
LOP Liability	<u>307.1</u>	<u>307.6</u>	<u>99.8%</u>
Total Annuitants	\$71,603.6	\$71,606.5	100.0%
Total Members	\$172,532.4	\$172,693.4	99.9%

Exhibit 4-2
Present Value of Future Benefits by System

	OSA	Milliman	Ratio OSA/Milliman
Present Value All Future Benefits (in \$Millions)			
PERS 1			
Active Members	\$ 181.0	\$ 179.6	100.8%
Inactive Members	<u>10,412.5</u>	<u>10,394.8</u>	<u>100.2%</u>
Total	\$ 10,593.5	\$ 10,574.4	100.2%
PERS 2/3			
Active Members	\$ 42,788.1	\$ 42,838.3	99.9%
Inactive Members	<u>31,101.7</u>	<u>31,103.1</u>	<u>100.0%</u>
Total	\$ 73,889.8	\$ 73,941.4	99.9%
TRS 1			
Active Members	\$ 50.1	\$ 49.8	100.6%
Inactive Members	<u>7,640.4</u>	<u>7,631.5</u>	<u>100.1%</u>
Total	\$ 7,690.5	\$ 7,681.4	100.1%
TRS 2/3			
Active Members	\$ 24,117.7	\$ 24,169.8	99.8%
Inactive Members	<u>10,946.6</u>	<u>10,968.5</u>	<u>99.8%</u>
Total	\$ 35,064.3	\$ 35,138.3	99.8%
SERS 2/3			
Active Members	\$ 7,059.1	\$ 7,061.1	100.0%
Inactive Members	<u>5,137.7</u>	<u>5,135.0</u>	<u>100.1%</u>
Total	\$ 12,196.8	\$ 12,196.1	100.0%
PSERS 2			
Active Members	\$ 2,241.4	\$ 2,235.9	100.2%
Inactive Members	<u>347.3</u>	<u>349.8</u>	<u>99.3%</u>
Total	\$ 2,588.7	\$ 2,585.7	100.1%
LEOFF 1			
Active Members	\$ 11.4	\$ 11.5	99.2%
Inactive Members	<u>4,257.9</u>	<u>4,265.0</u>	<u>99.8%</u>
Total	\$ 4,269.4	\$ 4,276.5	99.8%
LEOFF 2			
Active Members	\$ 15,237.0	\$ 15,258.7	99.9%
Inactive Members	<u>10,154.6</u>	<u>10,191.5</u>	<u>99.6%</u>
Total	\$ 25,391.5	\$ 25,450.1	99.8%
WSPRS			
Active Members	\$ 731.1	\$ 731.6	99.9%
Inactive Members	<u>1,314.0</u>	<u>1,316.8</u>	<u>99.8%</u>
Total	\$ 2,045.1	\$ 2,048.4	99.8%

We also looked at the Entry Age Normal Accrued Liability (EAN AL). EAN AL is used by OSA to measure the funded ratios and is described in Section 5 of this report. Exhibit 4.3 shows the audit had a good match of EAN AL. The EAN AL is consistent with the requirements of GASB No. 67 and GASB No. 68.

**Exhibit 4-3
Comparison of Entry Age Normal Accrued Liability**

	OSA	Milliman	Ratio OSA/Milliman
Entry Age Normal Accrued Liability (EAN AL) (in \$Millions)			
PERS 1	\$ 10,578.6	\$ 10,560.2	100.2%
PERS 2/3	60,258.2	60,271.5	100.0%
TRS 1	7,687.7	7,678.8	100.1%
TRS 2/3	25,609.6	25,774.4	99.4%
SERS 2/3	9,572.7	9,583.0	99.9%
PSERS 2	1,426.7	1,430.6	99.7%
LEOFF 1	4,269.3	4,276.4	99.8%
LEOFF 2	18,992.4	19,039.4	99.8%
WSPRS	1,783.8	1,787.0	99.8%
Total EAN AL	\$ 140,178.9	\$ 140,401.2	99.8%

Lastly, we looked at both the present value of future salaries and the Entry Age Normal Cost (EANC) rates, which are used in the determination of the minimum contribution rates.

**Exhibit 4-4
Present Value of Future Salaries and EANC Rate**

(in \$Millions)	All Systems in Aggregate		
	OSA	Milliman	O / M Ratio
Present Value of Future Salaries	\$295,628.3	\$296,398.7	99.7%
Entry Age Normal Cost Rate	11.43%	11.27%	101.5%

Recommendations

No changes are recommended to the calculations of the liabilities and normal cost rate in the 2023 valuation.

5. Funding

Audit Conclusion and Comments

We reviewed the funding methods and their application. We find them reasonable and consistent with the Actuarial Standards of Practice and the objectives stated in RCW 41.45.010. Based on the Systems' funding methods and assumptions, we believe the employer contribution rates for each membership class are appropriately calculated.

When we used the liabilities, present value of future salaries, and actuarial assets calculated by OSA, we matched OSA's contribution rate calculations. When we used the liabilities, present value of future salaries, and actuarial assets calculated by Milliman, the results were close to OSA's calculated contribution rates, as shown below.

Using the liabilities, present value of future salaries, and actuarial assets calculated by Milliman, the results were close to OSA's calculated contribution rates, as shown below.

Calculated Employer Contribution Rates

	OSA	Milliman	Difference OSA - Milliman
Calculated Employer Contribution Rates (Percent of Member Pay)			
PERS 1/2/3	8.62%	8.60%	0.02%
TRS 1/2/3	9.82%	9.84%	-0.02%
SERS 2/3	9.97%	9.96%	0.01%
PSERS 2	9.76%	9.74%	0.02%
WSPRS	21.72%	21.83%	-0.11%
LEOFF 1	0.00%	0.00%	0.00%
LEOFF 2*	5.66%	5.71%	-0.05%

* The LEOFF 2 contribution rate structure is a 50%/30%/20% share for the member, employer, and the state, respectively. The 30% share for the employer is shown here.

Calculated Member Contribution Rates

The calculated 2025-27 contribution rates for employees based on the 2023 actuarial valuation represent increases over the 2023-25 contribution rates being paid for PERS 2, TRS 2, SERS 2, PSERS 2, and LEOFF 2. Note that the legislature approved the continued use of the 2021-23 contribution rates based on the 2019 actuarial valuation for the 2023-25 employee contribution rates. For WSPRS 1/2, the employee rate is restricted by the maximum rate under RCW 41.45.0631. For TRS 2, the employee rate is restricted by the maximum rate under RCW 41.45.061.

The calculated employer contribution rates for PERS and SERS 2/3 are lower than the current rates for 2023-25. This is due to the scheduled decrease in UAAL payments for Plans 1 based on RCW 41.45.150. For TRS, the calculated employer contribution rates are higher than the current rates for 2023-25. For PSERS 2, the calculated employer contribution rates for FY 2026 are higher than the current rates, while the FY 2027 rates are lower. This is due to the phasing-in of lower PERS Plan 1 contribution rates under 41.45.150. When excluding the contributions for the amortization of the Plan 1 UAAL, the calculated PSERS 2 employer contribution rates increase from the current rates to the calculated rates for 2025-27.

The calculated employer rates for WSPRS 1/2 are higher than the current rates. For WSPRS 1/2, there is no contribution to pay for the UAAL for Plans 1 and the employee rate is restricted by the maximum under 41.45.0631.

2025-27 Contributions Recommended by the Pension Funding Council

Due primarily to the continued recognition of large asset gains from FY 2021 in the projected actuarial value of assets, the OSA calculated lower projected contribution rates for 2027-29 based on projections for the 2025 actuarial valuation. At its July 17, 2024 meeting, the PFC voted to transition to lower expected contribution rates by smoothing contribution rates between current (2023-25) rates and the estimated 2027-29 rates. The rates recommended were equal to the average of the current rates and the rates the OSA projected for the 2025 actuarial valuation (for the 2027-2029 biennium) assuming all assumptions are met and reflecting the expected recognition of current deferred asset gains.

Milliman projected contribution rates for the 2025 actuarial valuation (applicable to the 2027-2029 biennium) by using a simplified method to anticipate the continued recognition of the FY 2021 asset gains and FY 2022 asset losses. Applying the same averaging of the current and projected rates, as recommended by the PFC, we calculated rates as shown in the following table:

	OSA	Milliman	Difference OSA - Milliman
Member Contribution Rates (Percent of Member Pay)			
PERS 2	6.15%	6.12%	0.03%
TRS 2	8.16%	8.17%	-0.01%
SERS 2	7.59%	7.57%	0.02%
PSERS 2	7.15%	7.05%	0.10%
WSPRS	8.75%	8.75%	0.00%

2025-27 Contributions for LEOFF 2

At its July 24, 2024 meeting, the LEOFF 2 Board voted to maintain the 2023-25 contribution rates for the 2025-27 biennium, while projecting a phase-in to higher contribution rates in the future.

Plan 1 Ad Hoc Cost-of-Living Adjustments (COLAs)

SHB 1985 provides a one-time 3% benefit increase to PERS Plan 1 and TRS Plan 1 retirees, up to a maximum of \$110 per month. The benefit increase goes into effect on July 1, 2024. The increase only applies for members who are not receiving a minimum benefit or temporary disability benefit.

There were four previous one-time benefit increases between the years 2018 and 2023.

Per SSB 6161 from the 2009 legislative session, all Plan 1 benefit improvements are paid within a fixed ten-year period. Per RCW 41.45.060(6-8), the amounts required for these benefit increases are not subject to, and are collected in addition to, any minimum contribution rates.

As of the 2023 actuarial valuation, the contribution rates for benefit increases were 0.47% and 0.94% prior to SHB 1985 for PERS Plan 1 and TRS Plan 1, respectively. With the inclusion of the increases under SHB 1985, the contribution rates for benefit increases were 0.55% for PERS Plan 1 and 1.10% for TRS Plan 1. The Plan 1 PERS rates are paid by employers on all PERS, PSERS, and SERS payroll, while the TRS Plan 1 rates are paid by employers on all TRS payroll.

These five benefit increases for PERS and TRS Plan 1 retirees are included in the 2023 actuarial valuation and are included in projections of future contributions done by the OSA. The effect of any possible future ad hoc COLAs is not included in the funding valuation and projections. It is our understanding of RCW 41.45.070 that possible future COLAs should not be reflected in the current contribution rates. Any future ad hoc COLAs would result in additional actuarial liability and additional employer contributions when compared to what is anticipated by the current valuation and projections. It is also our understanding that the Select Committee on Pension Policy (SCPP) is engaged in the process of studying options for COLAs for Plans 1.

Please note that under the requirements of Governmental Accounting Standards Board 67 and 68, financial reporting for pensions must reflect all projected benefit payments. From the GASB 68 implementation guide, "Projected benefit payments should include the effects of automatic cost-of-living adjustments (automatic COLAs). In addition, projected benefit payments should include the effects of...ad hoc COLAs, to the extent that they are considered substantively automatic." GASB states that "considerations that might be relevant to determining whether such changes are substantively automatic include the historical pattern of granting the changes, the consistency of the amounts of the changes or the changes relative to a defined inflation index."

In the most recent GASB 67 numbers produced by the Office of the State Actuary, the calculation of the total pension liability includes an assumption for 2% annual increases for COLAs. This has an impact on financial reporting, but does not impact the funding calculations for PERS and TRS Plans 1.

Policy Objectives

The remainder of this section describes in detail why we believe the funding policies used to calculate contribution rates are reasonable and consistent with the objectives described in the RCW.

The contribution rate calculations for the Washington State retirement systems are complex. Much of this complexity is due to efforts to conform to articulated policy objectives. RCW 41.45.010 states that it is the intent of the legislature to provide a dependable and systematic process for funding the benefits provided to members and retirees of the State's retirement systems and sets out five specific goals:

1. To fully fund the Plans 2 and 3 as provided by law;
2. To fully amortize LEOFF Plan 1 costs not later than June 30, 2024;
3. To fully amortize the unfunded actuarial accrued liability for PERS and TRS Plans 1 within a rolling 10-year period, using methods and assumptions that balance needs for increased benefit security, decreased contribution rate volatility, and affordability of pension contribution rates;
4. To establish long-term employer contribution rates which will remain a relatively predictable proportion of the future state budgets; and
5. To fund, to the extent feasible, all benefits for Plans 2 and 3 members over the working lives of those members so that the cost of those benefits are paid by the taxpayers who receive the benefit of those members' service.

Although not specifically stated in RCW 41.45.010, the funding policies also achieve the following goals:

1. The same employer contribution rate is maintained for all members in the same class regardless of Plan. For example: employers make the same contribution for all TRS members regardless of whether the individual members are in Plans 1, 2, or 3. There is an exception to this rule for LEOFF Plans 1 and 2.
2. Funding risk is shared by both employers and members. In Plan 2, both employer and member contribution rates vary based on plan experience. In Plan 3, employer contribution rates vary based on plan experience, and members take the risk associated with their contributions since they are deposited in the defined contribution plan.

Actuarial Cost Methods

The funding policies of the Washington State retirement systems are based on two actuarial cost methods: the Aggregate cost method and the Entry Age Normal cost method. The Funded Ratios are measured based on the Entry Age Normal cost method. The following text describes these methods.

Purpose of a Cost Method and Normal Cost

The purpose of any actuarial cost method is to allocate the cost of future benefits to specific time periods, typically during a member's projected working career. In this way, benefits are financed during the time in which services are provided.

The cost assigned to a specific year is called the Normal Cost.

Aggregate Cost Method

Under the Aggregate cost method, the Normal Cost rate is equal to the level percentage of pay necessary to fund the difference between the present value of all future benefits for current members (PVFB) and the actuarial value of assets (AVA). The difference between PVFB and AVA is funded by future contributions. Each year, the Normal Cost spreads all required future contributions evenly over the present value of future salaries for current members. When actual experience is better or worse than expected experience, the Normal Cost in subsequent years will go down or up, respectively. The contribution calculated by the Aggregate cost method is therefore equal to the Aggregate Normal Cost.

Note that while appropriate for funding, this method does not result in a calculation of the liability independent of assets and therefore does not provide a meaningful "Funded Ratio." OSA currently addresses this by use of the Entry Age Normal cost method. That method is used to calculate the Funded Ratio and is used for GASB accounting and financial reporting.

Entry Age Normal Actuarial Cost Method

The Entry Age Normal Cost method is the most common method used by public plans. The goal of the Entry Age Normal Cost method is the theoretical allocation of projected benefit costs as a level percent of pay over the members' entire working lifetimes. The Entry Age Normal Cost (EANC) is the theoretical level percent of pay which, if contributed from the members' dates of hire to their dates of projected retirement, would exactly fund their benefits if all experience exactly matched the actuarial assumptions. Actual experience better or worse than expected will not change the EANC. The EANC as a percentage of pay is not anticipated to increase or decrease from year to year. Experience better or worse than expected creates a positive or negative Unfunded Actuarial Accrued Liability (UAAL), which is funded separately from the EANC.

Therefore, systems using the Entry Age Normal cost method have two components to their calculated costs: (1) the EANC, which is meant to be a level % of pay, and (2) the UAAL amortization contribution, which is the balancing item that makes sure all future benefits are financed if future experience follows the assumptions, and contributions are made according to schedule.

For the purposes of the Washington State plans, the Entry Age Normal cost method is only used to set minimum contribution rates based on the EANC. This is a logical use of EANC and should increase contribution stability since it represents the theoretical level percentage of pay contribution required to fund benefits if future experience follows the actuarial assumptions. Specifically, RCW sets minimum contribution rates as follows:

- PERS, TRS, SERS and PSERS Plans 2 and 3 employers and Plan 2 members have a minimum contribution rate based on sharing 80% of EANC. [RCW 41.45.155 and RCW 41.45.158]

- WSPRS employers and members have a minimum contribution rate based on sharing 70% of EANC [RCW 41.45.0631].
- SHB 1701 established a policy that sets minimum contribution rates based on a percentage of EANC for LEOFF Plan 2 with an offset. The bill required the OSA to calculate an offset to rates under the minimum contribution policy based on an asset transfer from the LEOFF 2 Benefit Improvement Account. The OSA calculated this offset to be 0.75% of pay for a 15 year period.

If the LEOFF 2 funded status (ratio of actuarial value of assets to the Actuarial Accrued Liability under the Entry Age Normal cost method) is less than 105%, then the minimum total contribution rates for members, the state, and employers will be 100% of the LEOFF Plan 2 normal cost rate as calculated under the Entry Age Normal cost method minus the calculated 0.75% offset for 15 years. Similarly, if the funded status is between 105% and 110%, then the minimum is 90% of the EANC minus 90% of the 0.75% offset, and when the funded status is greater than 110%, then the minimum contribution is equal to 80% of EANC without an offset. Currently, the contribution is paid 50% by members, 30% by employers, and 20% by the state per RCW 41.26.725.

Plans 2 and 3 Funding Policy

In general, the Plans 2 and 3 funding policies for PERS, TRS, SERS, PSERS, WSPRS, and LEOFF 2 are based on the Aggregate Cost method and work as described below. Note that where the following text makes references to “Plans 2 and 3” the references should be substituted with “Plans 1 and 2” for WSPRS. Also, please note that PSERS and LEOFF have no Plan 3. RCW 41.45 describes the actuarial funding of state retirement systems. The primary references for Plans 1, 2, and 3 funding are [RCW 41.45.060 Basic State and Employer Contribution Rates], [RCW 41.45.061 Required Contribution Rates for Plan 2 Members] and [RCW 41.45.0631 Washington State Patrol Retirement System].

1. The Plans 2 and 3 Present Value of Future Contributions shared by employers and members is calculated as:

$$\begin{array}{r} \text{Present Value All Future Benefits} \\ \text{minus } \underline{\text{Actuarial Value of Assets}} \\ \hline \text{Present Value of Future Contributions} \end{array}$$

Note that in previous cycles, there was also consideration of “past liability balances.” Those balances, based on “gain sharing” are now depleted.

2. The Plans 2 and 3 Aggregate Normal Cost Rate is determined by spreading the present value of future contributions shared by employers and members over the present value of future member salaries for Plans 2 and 3. The calculation takes into account that Plan 3 members do not contribute to the defined benefit plans.
3. Plans 2 and 3 minimum employer and member contribution rates are applied based on the EANC. That is, the calculated contribution rate cannot go below the applicable minimum contribution rate. The minimum rate for PERS, TRS, SERS, and PSERS is 80% of EANC. The minimum rate for WSPRS is 70% of EANC. As mentioned above, LEOFF 2 contributions have a minimum of 80%, 90% or 100% of EANC depending on the Plan funded ratio.
4. Plans 2 maximum member contribution rates are applied to TRS [RCW 41.45.061] and both Plans 1 and 2 of WSPRS [RCW 41.45.0631]. That is, the calculated contribution rate cannot exceed the applicable maximum contribution rate. For TRS Plan 2 and WSPRS, the 50% share of the Present Value of Future Contributions described in item 1 above for the 2023 valuation is more than the maximum member contribution rate, so the maximum rate applies for this valuation year. The employer rate is higher than 50% of the Present Value of Future Contributions. Note that this adds leverage to the employer contribution rate calculation. OSA's calculation of the Present Value of Future Benefits for WSPRS was 99.8% of Milliman's calculation, but the

calculated employer contribution rate was 99.2% of Milliman's calculation, 21.72% compared to Milliman's estimate of 21.94%.

5. TRS, PSERS, and WSPRS rates are also adjusted for benefit improvements due to legislation in 2023 and 2024. The PSERS rate increase reflects the potential transfer of Telecommunicators from PERS to PSERS under HB 1055.

LEOFF 2 Funding Policy

The LEOFF 2 funding policy follows the same general pattern as the other Plans 2 and 3. The total contribution is paid 50% by members, 30% by employers, and 20% by the state [RCW 41.26.725].

SHB 1701 established a policy that sets minimum contribution rates based on a percentage of EANC for LEOFF Plan 2 with an offset. The bill required the OSA to calculate an offset to rates under the minimum contribution policy based on an asset transfer from the LEOFF 2 Benefit Improvement Account. The OSA calculated this offset to be 0.75% of pay for a 15-year period.

As of the 2023 actuarial valuation, the rates calculated under the Aggregate cost method are more than the minimum contribution after applying the offset, but less than the minimum contribution before applying the offset.

At its July 24, 2024 meeting, the LEOFF 2 Board voted to maintain the 2023-25 contribution rates for the 2025-27 biennium, while projecting a phase-in to higher contribution rates in the future.

Plans 1 Funding Policy (PERS, TRS, SERS and PSERS)

PERS and TRS Plans 1 have both been closed to new members since 1977. The PERS and TRS Plans 1 funding policies have been designed to produce equal total contribution rates for PERS and TRS employers regardless of whether their employees are in Plans 1, 2, or 3, and to share the responsibility of PERS Plan 1 benefits with SERS and PSERS employers. It works as follows:

1. All remaining active PERS and TRS Plans 1 members have fixed contribution rates equal to 6.00% of pay.
2. The remaining balances for any liability from Plan 1 benefit improvements effective after June 30, 2009 are determined. These liabilities are financed based on rates that were calculated to amortize them over a fixed 10-year period using combined Plans 1, 2, and 3 salaries. The remaining balances are determined by taking the prior year's balance, adding interest, and subtracting employer contributions. PERS and TRS Plan 1 members have had five separate cost-of-living (COLA) benefit increases effective 2018, 2020, 2022, 2023, and 2024. For PERS, SERS, and PSERS employers, there are contributions of 0.55% for these five improvements. For TRS employers, the amounts are 1.10%. Any balances for benefit improvements prior to the July 1, 2018 COLAs have now been exhausted.
3. In addition to the contributions made for the remaining balances from Plan 1 benefit improvements, RCW 41.45.150(4)(a) provides the employer contribution rates that shall be in effect for PERS and PSERS for fiscal years ending 2024-27. Those rates are 1.50% for Fiscal Year ending 2026 and 0.50% for Fiscal Year ending 2027. Under RCW 41.45.150(5)(a), the same rates apply for SERS employers, but the fiscal years end August 31 instead of June 30. RCW 41.45.150(6)(a) contains the rates for fiscal years ending 2024-27 for TRS. Note that the rates are 0.00% for both 2026 and 2027.

While the contribution rates for Plans 1 UAAL for fiscal years ending 2024-27 are based on the prescribed rates above, the OSA continues to calculate rates to fund the Plans 1 UAAL for informational purposes. The methodology used in this calculation, is described below. Under RCW 41.25.140(1)-(3), for fiscal years 2015 through 2023, the Plans 1 UAAL contribution rates were the greater of the specified contribution rate and the ten-year rolling amortization described below.

1. The Present Value of Future Normal Costs (PVFNC) is determined. The Plan 1 funding policy defines this to be the present value of future contributions made by Plan 1 employees plus the present value of future employer contributions made as a percent of Plan 1 member pay based on the Plans 2 and 3 employer contribution rates calculated above. This must be considered to keep the contribution rates equal for Plans 1, 2, and 3.

2. The Plan 1 UAAL is calculated as:

	Present Value All Future Benefits
minus	PVFNC
minus	Actuarial Value of Assets
minus	Contributions Receivable Adjustment
minus	Balance Post 2009 Improvements
	Unfunded Actuarial Accrued Liability

3. The UAAL Rate is calculated as the percent of Plans 1, 2, and 3 member pay to amortize the Plan 1 UAAL over 10 years as a level percentage of projected payroll. This is based on a rolling 10-year period which means every year the UAAL is amortized over a new 10-year period. This helps to keep rates stable while amortizing a material portion of the remaining UAAL each year.

OSA calculates a contribution rate for informational purposes of 0.34% for PERS Plan 1 and 0.27% for TRS Plan 1 using this method. Milliman confirmed the OSA calculations are reasonable, as we calculated a contribution rate of 0.33% for PERS Plan 1 and 0.25% for TRS Plan 1 based on the same methodology, but using Milliman's liability calculations. Note that the rate for PERS Plan 1 is less than what RCW 41.45.150(4)(a) and RCW 41.45.150(5)(a) prescribe for PERS, PSERS, and SERS employers. However, the rate for TRS Plan 1 is more than the 0.00% specified by RCW 41.45.150(6)(a). This means that the contribution rate being paid for TRS Plan 1 for 2025-27 is not projected to be sufficient to amortize the UAAL if that rate were to continue. Note, however, that under RCW 41.45.150(6)(b) the minimum contribution for TRS Plan 1 is scheduled to increase to 0.50% of pay beginning September 1, 2027, which is projected to be sufficient to amortize the TRS Plan UAAL in less than 10 years.

Evaluation of Funding Policy

As stated earlier, we believe the funding policies described above are consistent with Actuarial Standards of Practice and with the intended policy objectives. Additional specific comments follow below.

The Aggregate cost method is used as the foundation for the funding policies. The Aggregate cost method is specifically designed to fully fund all future benefits for current members (that are not financed by accumulated assets) over the remaining projected working lifetimes of those members. This provides “demographic matching,” which is to say benefits are funded over the working lifetimes of the members receiving them. It is also helps avoid “agency risk” issues, which means use of the Aggregate method makes it difficult to push the cost of benefits for current members onto future generations

The Aggregate method is also consistent with the policy objectives identified in RCW 41.45.010, particularly the fifth policy objective: to fund, to the extent feasible, all benefits for Plans 2 and 3 members over the working lives of those members so that the cost of those benefits are paid by the taxpayers who receive the benefit of those

members' service. It should be noted that the average working life of the active population should in theory remain level (if the active population remains level), so the benefits are effectively funded over a rolling period.

The Aggregate method's primary shortcoming is that it passes all gains and losses through to the Normal Cost, which pays for them over the comparatively short period of the active members' projected remaining working lifetimes. The downside of this is that it can decrease the stability of short-term costs.

This shortcoming is addressed in the funding policy by smoothing asset gains and losses over as much as eight years, as well as by applying the minimum contribution rates. Eight-year asset smoothing is longer than five years, which is the most common length of asset smoothing. The comparatively longer asset smoothing period helps partially offset the comparatively shorter financing period for gains and losses under the Aggregate cost method. The minimum contribution rates equal to 70% or 80% of the EANC help avoid temporary large decreases in contributions due to good investment experience at the peak of a market cycle.

The Plans 1 policy of contributing at a level which finances the UAAL over a rolling 10-year period based on the pay of Plans 1, 2, and 3 is a rough equivalent of the Aggregate Cost Method. The 10-year rolling period bears a very general similarity to financing UAAL over the members' projected remaining working lifetimes. Note that the TRS 1 UAAL contribution rates under RCW 41.45.150(6)(a) are less than what is calculated by the funding policy described above, but the TRS 1 UAAL contribution rates scheduled to start in 2027 under RCW 41.45.150(6)(b) are greater than what is calculated by the funding policy.

Paying 80% or more of EANC for LEOFF Plan 2 avoids making contributions which are significantly less than the expected long-term cost of benefits. Short-term rate stability is increased since rates will not fluctuate every year due to gains and losses, particularly investment gains and losses, being reflected in the Aggregate Normal Cost. Some margin is provided for adverse experience since the rates are higher than the Aggregate Normal Cost.

6. Preliminary Report, Required Disclosures, and Recommendations from Prior Audit

Audit Conclusion and Comments Regarding OSA's Reports and Risk Disclosures

This section focuses on (a) compliance with Actuarial Standards of Practice and (b) suggestions of potential changes to the content shown in the valuation report and risk disclosures which may improve the usefulness of OSA's communications.

Due to timing considerations with the completion of the actuarial audit, the final 2023 Actuarial Valuation report has not been completed at this time, so we base the comments on the preliminary report. In addition to the preliminary report available online at the time of this report, the OSA shared a preliminary certification letter with Milliman.

OSA's report meets the applicable Actuarial Standards of Practice. We feel that the amount of disclosure included in the report is commensurate with the size and complexity of the Washington State retirement systems. We found the page of links at the back of the report to be particularly useful in accessing the important information that the OSA provides. We do not have any recommended changes to the funding valuation report.

Actuarial Standard of Practice No. 4 (ASOP 4)

Effective for measurement dates February 15, 2023 or later, Actuarial Standard of Practice No. 4 (ASOP 4) had multiple new disclosure requirements for actuaries performing funding valuations. Note that the June 30, 2023 report is the first after the effective date required to reflect the revisions to ASOP 4. We found that the OSA's report appropriately reflects these revised disclosure requirements. The new requirements include the following:

1. The ASOP now states that when performing a funding valuation, the actuary should calculate and disclose a low-default-risk obligation measure (LDROM) of the benefits earned or accrued under the actuarial cost method used as of the measurement date. The OSA used US Treasury yields as of the measurement date to inform the discount rate used for the LDROM measurement. In our opinion, this methodology satisfies the requirements for the LDROM.
2. The ASOP now requires gain/loss analysis that includes disclosure of the split of investment gain/loss and liability gain/loss. The OSA's report continues to have a robust disclosure of gains and losses, which includes separate items for assets and various types of liability gains and losses.
3. The ASOP now requires the actuary to calculate and disclose a reasonable Actuarially Determined Contribution (ADC) which reflects actuarial methods and actuarial assumptions that are in compliance with actuarial standards of practice. Based on the assumptions and methods used in the report, we believe that the calculated contribution rates qualify as reasonable ADCs for each plan.
4. The ASOP requires that the actuary discuss the implications of the funding policy on expected future contributions and funded status. The preliminary certification letter of the report discusses these implications. In addition to the discussion in the certification letter, the OSA produces additional discussion and projections on its website.

Actuarial Standard of Practice No. 51 (ASOP 51)

Actuaries are required to follow the applicable Actuarial Standards of Practice (ASOPs) for certain work, such as actuarial valuations. ASOP 51 provides actuaries with guidance for assessing and disclosing the risk associated with measuring pension liabilities and the determination of pension plan contributions.

Specifically, ASOP 51 directs the actuary to:

- Identify risks that may be significant to the plan.
- Assess the risks identified as significant to the plan. The assessment does not need to include numerical calculations.
- Disclose plan maturity measures and historical information that are significant to understanding the plan's risks.

ASOP 51 states that if in the actuary's professional judgment, a more detailed assessment would be significantly beneficial in helping the individuals responsible for the plan to understand the risks identified by the actuary, then the actuary should recommend that such an assessment be performed.

OSA provides a discussion of risk in the actuarial report, along with links to where more detailed information on risk can be found on the web. The OSA has also included a discussion of risk with recent fiscal notes. In our opinion, OSA's work product is consistent with ASOP 51.

Commentary on Risk Webpage

The [Commentary on Risk webpage](#) (underline indicates link to webpage) which is directly referenced and linked in the actuarial valuation is the primary tool for organizing the risk disclosure information on the various web pages. The information available through this organization satisfies the requirements of ASOP 51. It is divided into five easy to expand/collapse sections on: (1) Ways to Measure Risk, (2) Risk Measurements for Washington's Public Pension Plans, (3) Demographic Risks, (4) Historical Information, and (5) Plan Maturity Measures. This page contains a large amount of valuable information.

Recommendations Addressed from Prior Actuarial Audit

The OSA has incorporated all of Milliman's prior recommendations. None of these changes materially affected the results of the 2023 valuation.